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EXAMINER

HARKNESS, CHARLES A

ART UNIT

PAPER NUMBER

2183

DATE MAILED: 03/22/2004

5

Please find below and/or attached an Office communication concerning this application or proceeding.

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# Office Action Summary

Application No.

09/671,973

Applicant(s)

BLANDY, GEOFFREY OWEN

Examiner

Charles A Harkness

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 24 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,7-9,11,17,18,20 and 26-28 is/are rejected.
- 7) ☒ Claim(s) 2-6, 10, 12-16, 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. In view of Applicant's submission of corrected drawings, the objection to the drawings is withdrawn.
2. The objection to the claims has been withdrawn.
3. In view of Applicant's amendment to the claims, the 112 rejection has been withdrawn.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1, 9, 11, 18, 20, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maslennikov et al, U.S. Patent Number 6,412,105 (herein referred to as Maslennikov) in view of Santhanam U.S. Patent Number 6,286,135 (herein referred to as Santhanam).
5. Referring to claims 1, 11, and 20 Maslennikov has taught a method of implementing a switch instruction in an IA64 architecture based data processing device, comprising:

Receiving a call to the switch instruction, the call including one or more parameters for the switch instruction (Maslennikov figure 1 column 3 lines 21-40; inherently the switch instruction would have to be called);

Loading a plurality of values associated with a plurality of branch addresses based on the one or more parameters (Maslennikov figure 1 column 3 lines 32-40; the values would be loaded to show which branch of the switch would be the correct path); and

Calling an instruction associated with one of the plurality of branch addresses based on the values of the predicate form (Maslennikov figure 1 column 3 lines 32-40; which ever branch instruction of the switch statement has its predicate value set to true will be the branch that is called).

Maslennikov has not taught the use a predicate registers. Santhanam has taught the use a predicate registers (Santhanam column 28 lines 24-32, column 16 lines 26-61). Santhanam has shown the use of predicate registers for replacing conditional branches. One predicate register is simply set of one condition is met, and another predicate register would be set, while the other is not set, if the condition is not set. By using predicate registers, pipeline penalties can be avoided (Santhanam column 16 lines 46-51). One of ordinary skill in the art at the time of the invention would have recognized the benefit of combing the predicate form of Maslennikov for switch instructions with the predicate register use of Santhanam. The use of the predicate registers would be very similar since switch instructions are just nested branch instructions, or if-then-else statements. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use predicate registers for switch instructions to avoid pipeline penalties.

6. Referring to claims 9, 18, and 28 Maslennikov has taught wherein the switch instruction is a dense switch statement in C (Maslennikov column 2 lines 13-30, column 4 lines 4-21, figure 1, abstract).

7. Claims 7-8, 17, and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maslennikov in view of Santhanam in further view of The Java Virtual Machine Specification (herein referred to as Java).

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8. Referring to claims 7, 17, and 26 the combination of Maslennikov and Santhanam has not taught wherein the switch instruction is a Java tableswitch instruction. Java has taught wherein the switch instruction is a Java tableswitch instruction (Java" tableswitch"). It would have been obvious to one of ordinary skill in the art at the time of the invention to write a program in Java to be used on a system which uses predicate registers, or predicate processing. Java is a commonly used programming language, and one of ordinary skill in the art would have been motivated to take advantage of its many features on a variety of processors because of its popularity among programmers. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention write a program in Java to be used on a system which uses predicate registers, or predicate processing because Java is a common programming language that is widely used in the art.

9. Referring to claims 8 and 27 the combination of Maslennikov and Santhanam has not taught wherein the method is implemented in a Java Virtual Machine. Java has taught wherein the method is implemented in a Java Virtual Machine (Java" tableswitch"). It would have been obvious to one of ordinary skill in the art at the time of the invention to write a program in Java to be used on a system which uses predicate registers, or predicate processing. Java is a commonly used programming language, and one of ordinary skill in the art would have been motivated to take advantage of its many features on a variety of processors because of its popularity among programmers. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention write a program in Java to be used on a system which uses predicate registers, or predicate processing because Java is a common programming language that is widely used in the art.

***Allowable Subject Matter***

10. Claims 2-6, 10, 12-16, 19, 21-25, and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Referring to claims 2, 12, and 21 and all of their dependent claims, the combination of Maslennikov and Santhanam and Java has not taught individually, or in combination, wherein having the one or more parameters includes a range of branch address, the range being defined by a high value and a low value, determining if the low value is lower than a lowpredicate, setting a first register value to  $2^{**}(\text{lowpredicate} - \text{low value})$  if the low value is lower than the lowpredicate, and setting the first register value to  $2^{**}(\text{lowpredicate})$  if the low value is not zero, where lowpredicate is a predicate register number of a lowest numbered predicate register.

***Response to Arguments***

12. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles A Harkness whose telephone number is 703-305-7579. The examiner can normally be reached on 8:00 A.M. – 5:30 P.M. with every other Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on 703-305-9712. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-7579.

Charles Allen Harkness

Examiner

Art Unit 2183

March 17, 2004



EDDIE CHAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100